ASSIGNMENT 3

Textbook Assignment: "Gasoline Fuel Systems," chapter 4, pages 4-1 through 4-48.

3-1. What type of additives are used in leaded gasoline to slow down ignition?

1. Antiping
2. Antiknock
3. Anticombustion
4. Antioxidants

3-2. Which of the following properties is NOT a property of gasoline?

1. Volatility
2. Antiknock quality
3. Cetane number
4. Octane rating

3-3. The measurement of the ability of a fuel to resist knock or ping is known as

1. air-fuel ratio
2. cetane number
3. volatility
4. octane rating

3-4. A mixture of 9 parts of air and 1 part of gasoline is richer than one consisting of 18 parts of air and 1 part of gasoline.

1. True
2. False

3-5. Which of the following air-fuel ratios is considered to be perfect for a gasoline engine?

1. 8:1
2. 10:1
3. 15:1
4. 20: 1

3-6. An air-fuel mixture that is too lean will cause which of the following conditions?

1. Increased power
2. Increased fuel consumption
3. Poor engine performance
4. Decreased exhaust emissions

3-7. Which of the following is NOT a condition of abnormal combustion?

1. Detonation
2. Pre-ignition
3. Dieseling
4. Spark ping

3-8. Which of the following factors can cause dieseling in a gasoline engine?

1. Low octane fuel
2. Low heat range spark plugs
3. Incorrect timing
4. Hot exhaust valve

3-9. What device is used in the filler neck of a gasoline fuel tank to prevent the accidental use of leaded fuel?

1. A fuel valve
2. A restrictor
3. A vacuum valve
4. A fuel Nozzle

3-10. What is the function of the baffles in a fuel tank?

1. To reinforce the bottom of the fuel tank
2. To reinforce the sides of the fuel tank
3. To prevent the fuel from sloshing and splashing
4. To prevent the escape of fuel and fuel vapors from the tank

3-11. Fuel filters are NOT made of which of the following materials?

1. Sintered brass
2. Ceramic
3. Treated paper
4. Metal screen

3-12. What is the function of the fuel pump?

1. To measure the amount of fuel that enters the carburetor or fuel injectors
2. To deliver the fuel from the tank to the engine under pressure
3. To pump fuel from the carburetor to the intake manifold
4. To pump fuel from the carburetor through the fuel filter into the manifold

3-13. What are the two types of fuel pumps used in a gasoline fuel system?

1. Electric and pneumatic
2. Electromechanical and hydraulic
3. Mechanical and electromechanical
4. Mechanical and electrical

3-14. What type of fuel pump delivers fuel continuously?

1. Autopulse
2. Positive displacement
3. Nonpositive displacement
4. Diaphragm

3-15. When a vacuum test is being performed on a fuel pump, what reading indicates a good fuel pump?

1. 3 to 5 in/hg
2. 5 to 7 in/hg
3. 7 to 10 in/hg
4. 10 to 15 in/hg

3-16. Fuel lines are normally made of what material?

1. Single-wall steel tubing
2. Double-wall steel tubing
3. Single-wall copper tubing
4. Double-wall copper tubing

3-17. What part of the carburetor controls air flow through the air horn?

1. Main discharge tube
2. Carburetor body
3. Venturi
4. Throttle valve

3-18. The function of the venturi in a carburetor is to

1. lower the atmospheric pressure in the float bowl to force fuel through
2. reduce the rate of vaporization by lowering the pressure of the air entering the carburetor
3. spray the fuel in the air by increasing the speed of the air entering the carburetor
4. produce sufficient suction to pull fuel out of the main discharge tube

3-19. The fuel supply in the carburetor bowl is controlled by the

1. float
2. choke
3. throttle
4. fuel pump

3-20. What component of the float system regulates the amount of fuel passing through the fuel inlet of a carburetor?

1. Needle valve
2. Carburetor float
3. Bowl vent
4. Vacuum pump

3-21. At speeds below 800 rpm or 20 mph, the air-fuel mixture of the engine is controlled by what carburetor system?

1. Off-idle
2. Idle
3. Acceleration
4. Choke

3-22. When adjusting the idle on a carburetor, the idle mixture screw is turned out to increase the size of the idle port. This action increases the fuel mixture at idle.

1. True
2. False

3-23. When the acceleration pump is opened, what component controls the length of time that the stream of fuel will last?

1. Pump check ball
2. Pump check weight
3. Duration spring
4. Throttle linkage

3-24. What system provides the leanest and most fuel efficient air-fuel ratio?

1. Idle
2. Off-idle
3. Full power
4. High speed

3-25. Which of the following carburetor components is designed to increase engine power and also maintains reasonable economy?

1. Power jet
2. Metering jet
3. Vacuum jet
4. Mechanical jet

3-26. A choke alters the air-fuel mixture that enters the manifold of a cold gasoline engine during starting by admitting

1. less air
2. more air
3. less fuel and more air
4. more fuel and more air

3-27. What type of automatic choke mounts the thermostatic spring in the top of the exhaust manifold?

1. Exhaust manifold
2. Heated well-type
3. Engine coolant
4. Electrical

3-28. What device cracks open the choke plate as soon as the engine starts, thus preventing the engine from flooding?

1. Fast idle cam
2. Choke linkage
3. Fast idle solenoid
4. Vacuum choke unloader

3-29. On a carburetor, what device keeps the throttle from closing too quickly when the accelerator pedal is suddenly released?

1. Fast idle solenoid
2. Throttle return dashpot
3. Antistall solenoid
4. Throttle decelerator dashpot

3-30. Under high engine temperatures, what device prevents the engine from stalling or idling rough by admitting extra air into the engine to increase idle speed?

1. Temperature compensator
2. Temperature idle cam
3. Hot idle compensator
4. Venturi vent compensator

3-31. In a computerized carburetor, what sensor allows the computer to enrich the fuel mixture during cold engine operations?

1. Manifold pressure
2. Oxygen
3. Mixture control
4. Temperature

3-32. The manifold pressure sensor (MAP) measures exhaust manifold pressure and engine load.

1. True
2. False

3-33. In a computerized carburetor, what device alters the air-fuel mixture?

1. Throttle control solenoid
2. Idle speed solenoid
3. Mixture control solenoid
4. Oxygen pressure solenoid

3-34. In a carburetor system, which of the following conditions does NOT result in excessive fuel consumption?

1. High float level
2. Sticking metering rod
3. Too lean an idling mixture
4. Sticking accelerator pump

3-35. Which of the following carburetor conditions can be attributed to a poorly operating accelerator pump?

1. Sluggish engine
2. Poor idling
3. Slow engine warm-up
4. Smoky black exhaust

3-36. The engine runs but misses. This malfunction is most likely caused by which of the following conditions?

1. Very lean air-fuel mixture
2. Clogged fuel line
3. Incorrectly adjusted choke
4. Vacuum leak at the intake manifold

3-37. Which of the following conditions is a good indication that the float level is too high?

1. High speed nozzle is dripping
2. Engine speeds up slightly
3. Discharges a squirt of fuel into the air horn
4. Engine runs rough at idle

3-38. When you are making a quick check of the main metering system, after placing a piece of stiff cardboard over the air horn, engine speed should

1. speed up slightly
2. stay the same
3. slow down slightly
4. speed up then slow down

3-39. Which of the following attributes is NOT an advantage of a gasoline injection system over a carburetor type system?

1. Improved atomization
2. Better fuel distribution
3. Richer fuel mixture
4. Lower emissions

3-40. In a gasoline indirect injection system, fuel is sprayed into the

1. precombustion chamber
2. cylinder
3. combustion chamber
4. intake manifold

3-41. Of the gasoline fuel injection systems, what system is the most precise and also the most complex?

1. Hydraulic-timed injection
2. Throttle body fuel injection
3. Timed fuel injection
4. Continuous fuel injection

3-42. In a mechanical-timed injection system, the throttle valve regulates engine speed and power output by regulating the

1. intake pressure
2. manifold vacuum
3. exhaust pressure
4. metering pump vacuum

3-43. Which of the following is NOT a subsystem of an electronic-timed fuel injection system?

1. Fuel delivery system
2. Air induction system
3. Computer control system
4. Fuel metering system

3-44. In an electronic fuel injection system, what sensor measures the amount of outside air entering the engine?

1. Air flow
2. Inlet air temperature
3. Manifold pressure
4. Oxygen

3-45. In an electronic fuel injection system, the fuel pressure regulator diverts the excess fuel to which of the following locations?

1. Back to the fuel tank
2. Inlet side of the fuel filter
3. Inlet side of the fuel pump
4. Back to the inlet side of the fuel line

3-46. In a continuous fuel injection system, the cold start injector is activated by electric current from what sensor?

1. Air inlet temperature
2. Air flow
3. Manifold pressure
4. Thermal

3-47. What component of a throttle body injection system contains the fuel pressure regulator?

1. Throttle air horn
2. Throttle body housing
3. Throttle positioner
4. Throttle fuel mixture valve

3-48. What component actuates the throttle positioner to open and close the throttle plates?

1. Electric current
2. Hydraulic pressure
3. Computer
4. Pressure regulator

3-49. Of the following chemical compounds, which one is NOT a major pollutant?

1. Carbon dioxide
2. Carbon monoxide
3. Hydrocarbons
4. Oxides of nitrogen

3-50. In areas with heavy vehicular traffic, hydrocarbons in heavy concentrations produce a gray fog. This fog is known as photochemical smog.

1. True
2. False

3-51. Exhaust manifolds are made from what type of material?

1. Aluminum
2. Steel
3. Cast iron
4. Iron alloy

3-52. The manifold heat control valve deflects exhaust gases toward a hot spot in the exhaust manifold until the engine reaches operating temperature.

1. True
2. False

3-53. What device is used to reduce the acoustic pressure of exhaust gases and discharge the gases into the atmosphere?

1. Resonator
2. Catalytic converter
3. Muffler
4. Exhaust manifold

3-54. The catalytic converter changes carbon monoxide and hydrocarbons into carbon dioxide and

1. hydrogen
2. oxygen
3. methane
4. water

3-55. What two materials inside a catalytic converter act as a catalyst?

1. Silver and bronze
2. Bronze and platinum
3. Silver and palladium
4. Platinum and palladium

3-56. In an air injection system, what device is used to prevent air from entering the exhaust system during deceleration?

1. Air distribution manifold
2. Air check valve
3. Air pump
4. Diverter valve

3-57. What device keeps exhaust gases from entering the air injection system?

1. Air check valve
2. Diverter valve
3. Air distribution manifold
4. Air pump

3-58. The open type positive crankcase ventilation system has a sealed breather that is connected to the air filter by a hose.

1. True
2. False

3-59. To control the formation of oxides of nitrogen, the exhaust gas recirculation system recirculates a portion of the exhaust gases back through the

1. intake manifold
2. exhaust manifold
3. muffler
4. catalytic converter

3-60. At idle, engine vacuum is blocked off so it cannot act on the EGR valve. How is this accomplished?

1. By a closed diverter valve
2. By a closed vacuum diaphragm
3. By a closed throttle plate
4. By a closed heat control valve

3-61. The fuel dome provides what amount of air space for fuel heating and volume increase?

1. 5 percent
2. 10 percent
3. 15 percent
4. 20 percent

3-62. What device is used to prevent fuel from entering the fuel tank vent line in the event of a accident in which the vehicle turns over?

1. Purge valve
2. Fuel tank valve
3. Roll-over valve
4. Spillage valve

3-63. The charcoal canister does not store fuel vapors when the engine is running.

1. True
2. False

3-64. What component connects the charcoal canister to the engine intake manifold and is used to clean out stored fuel vapors from the charcoal canister?

1. Purge line
2. Carburetor vent line
3. Fuel tank vent line
4. Liquid-vapor separator

3-65. When the engine is turned off, heat produces excess vapors. These vapors are carried to the charcoal canister through the

1. liquid-vapor separator
2. fuel tank vent line
3. carburetor vent line
4. purge line